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EXAMINER	
KIM, JUNG W	

ART UNIT	PAPER NUMBER
2132	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/764,645

Applicant(s)

KHORMAEI ET AL.

Examiner

Jung Kim

Art Unit

2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is in response to the amendment filed on 11/09/07.
2. Claims 1-25 are pending.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/9/07 has been entered.

Response to Arguments

4. Applicant's arguments with respect to the prior art rejections have been fully considered but they are not persuasive.
5. It is initially noted that applicant's arguments on pg. 8, lines 13-25 of the Remarks are moot as the claims have been amended and thereby eliminate the limitation in question, (i.e. applying a halftoning process to a digital file defined by a plurality of discrete digital values, and performing a predetermined mathematical process involving each of the plurality of discrete digital values).
6. Applicant argues that Tresser does not disclose that the halftone image is produced directly from the original image because Tresser discloses that a new image

(I') is first computed out of the original image (I) by covering the original image with a grid of size H-by-V, and then averaging the grey levels on the little rectangles defined by the grid. (Remarks, pgs. 8-9) This argument is not persuasive. Tresser discloses an embodiment wherein the image (I) is described to be a physical image which must be scanned before the processing occurs. (Col. 9:1-3) Hence, as disclosed by Tresser, the image (I) maps to the claimed feature of a document, and the image (I') maps to the claimed feature of the initial digital file. It is further noted that applicant's application broadly describes an "initial digital file" as a file that is provided from an electronic document file and, which is then converted into a halftone file. (See claim 1, figs. 1 and 2) Therefore, under the broadest reasonable interpretation of the claims, Tresser discloses submitting the initial digital file directly to a predetermined halftoning process to generate a digital halftone file without any intervening transformations.

7. In response to applicant's argument that Tresser does not disclose the limitation of claim 23 because Tresser only discloses a single computer and a single printer, this argument is not persuasive for the following reasons: Tresser discloses means for generating an authentication key that can be used for authenticating an image using a computer in col. 8:36-9:62. Tresser further discloses means for authenticating the image using a computer. (col. 9:63-10:47) Furthermore, Tresser does not disclose the computer used in the means for generating an authentication key is the same as the computer used to authenticate the image. Hence, Tresser discloses a plurality of computers for use in the invention.

8. For these reasons, the claims remain rejected under the prior art of record.

Claim Rejections - 35 USC § 102

9. Claims 1-11 and 14-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Tresser et al. USPN 6,804,373 (hereinafter Tresser).

10. As per claims 1-6, Tresser discloses a method of generating an authentication key that can be used to authenticate an electronic document file representative of a document, comprising:

- a. providing the electronic document file as an initial digital file; (col. 8:56-9:3)
- b. submitting the initial digital file directly to a predetermined halftoning process to generate a digital halftone file without any intervening transformations; and (9:4-7 and lines 40-44)
- c. submitting the digital halftone file to a predetermined mathematical process to thereby generate the authentication key; (9:7-32)
- d. printing the digital halftone file to provide a tangible copy of the document containing a visible representation of the authentication key; (9:66-10:5)
- e. displaying the digital halftone file on a user display to provide a visible copy of the document and the authentication key; (10:61-64)
- f. wherein the halftoning process is based, at least in part, on an error diffusion halftoning algorithm; (5:30-31 and lines 41-44)

- g. wherein the halftoning process is based, at least in part, on one of a matrix-based halftoning algorithm, a pattern-based halftoning algorithm, or an ordered-dither halftoning algorithm; (5:15-41; 9:4-7) and
- h. wherein the predetermined mathematical process is a summation process. (6:6-25)

11. As per claims 7-11, Tresser discloses a method of authenticating an electronic document file representative of a document, comprising:

- i. receiving the electronic document file as an initial digital file; submitting the initial digital file directly to a predetermined halftoning process to generate a digital halftone file without any intervening transformations; and submitting the digital halftone file to generate an authentication key; and using the authentication key to authenticate the electronic document file; wherein using the authentication key to authenticate the electronic document file comprises:
receiving a sender authentication key; and comparing the sender authentication key to the generated authentication key and, if the keys are the same, authenticity of the electronic document file is verified; (col. 9:63-10:48, especially 10:36-41; the inverse of the signature is a compressed version of N'; embedded matrix M is necessarily transformed to compressed version of half tone N, whereby a match authenticates the document)
- j. wherein the halftoning process is based, at least in part, on an error diffusion halftoning algorithm; (5:30-31 and lines 41-44)

- k. wherein the halftoning process is based, at least in part, on one of a matrix-based halftoning algorithm, a pattern-based halftoning algorithm, or an ordered-dither halftoning algorithm; and (5:15-41; 9:4-7)
- l. wherein the predetermined mathematical process is a summation process. (6:6-25)

12. As per claim 14, Tresser discloses a system to generate an authentication key to be used to authenticate an electronic document file representative of a document, comprising: a processor; and a computer readable memory device which is readable by the processor (fig. 7 and related text), the computer readable memory device containing a series of computer executable steps configured to cause the processor to: retrieve a copy of the electronic document file as an initial digital file (col. 8:56-9:3); submit the initial digital file directly to a predetermined halftoning process to generate a digital halftone file without any intervening transformations (9:4-7 and lines 40-44); submit the digital halftone file to a predetermined mathematical process to thereby generate the authentication key (9:17-19 and lines 25-32); and store a copy of the authentication key in the computer readable memory device. (fig. 3, reference no. 380; 10:53-54)

13. As per claim 15, Tresser further discloses wherein the processor and the computer readable memory device are resident within a document printing device. (col. 1:10-12; fig. 7, reference no. 739)

14. As per claim 16, Tresser further discloses wherein the series of computer executable steps are further configured to cause the processor to print a tangible copy of the halftone image file as the document, and to include the authentication key on the tangible copy of the halftone image file. (Col. 9:66-10:5)

15. As per claim 17, Tresser further discloses wherein the computer readable memory is configured to store, at least temporarily, a copy of the electronic document file as the initial digital document file. (fig. 3, reference no. 380; 10:53-54)

16. As per claim 18, Tresser discloses the system further comprising a user display, and wherein the series of computer executable steps are further configured to cause the processor to display, via the user display, the authentication key. (Col. 10:61-64)

Claim Rejections - 35 USC § 103

17. Claims 12 and 13 are rejected under 35 USC 103(a) as being unpatentable over Tresser in view of Linsker et al. USPN 5,598,473 (hereinafter Linsker).

18. As per claims 12 and 13, the rejections of claims 9 and 10 as being anticipated by Tresser are incorporated herein. Tresser does not disclose wherein the electronic document file is received from a sender via a network and wherein the sender authentication key is received via one of telephone or facsimile. Linsker discloses using an authentication key to verify the integrity of a fax transmission from a sender to a

receiver. The authentication key is based on a digest of a digital document and signature of the digest, which is appended to the document and faxed to the receiver. The receiver recovers the first digest from the signature then performs an operation on the digital document to create a second digest, wherein a match between the first and second digest shows that the document is authentic. Col. 6:33-8:15. It would be obvious to one of ordinary skill in the art at the time the invention was made for the electronic document file of Tresser to be received from a sender via a network and wherein the sender authentication key is received via one of telephone or facsimile. One would be motivated to do so to ensure the authenticity of documents transmitted via fax using an authentication key derived from halftoning digital information, a process that provides the requisite security, whether or not the document was scanned properly. (Linsker, 1:43-55; Tresser, 3:49-55) The aforementioned cover the limitations of claims 12 and 13.

19. Claims 19, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tresser in view of Brundage et al. US Patent Application Publication No. 20040181671 (hereinafter Brundage).

20. As per claim 19, Tresser discloses a system for authenticating an electronic document file representative of a document, comprising: a processor; a computer readable memory device which is readable by the processor (fig. 7 and related text) and which is configured to receive the electronic document file as an initial digital file; and

wherein: the computer readable memory device contains a series of computer executable steps configured to cause the processor to: store the initial digital file in the computer readable memory device; submit the initial digital file directly to a predetermined halftoning process to the initial digital file to generate a digital halftone file without any intervening transformations; submit the digital halftone file to a predetermined mathematical process to thereby generate the authentication key. (col. 9:63-10:48, especially 10:36-41; the inverse of the signature is a compressed version of N' ; embedded matrix M is transformed to compressed version of half tone N , a match authenticates the document)

21. Tresser does not disclose displaying a copy of the authentication key to a user via one of a printer or a user display. Brundage discloses a system for authenticating identification documents using a watermark, wherein an authenticator displays the watermark information to a user to allow an inspector or officer to visually compare the watermark information against information printed on the document. Paragraph 62. It would be obvious to one of ordinary skill in the art at the time the invention was made to display a copy of the authentication key to a user via one of a printer or a user display. One would be motivated to do so to enable a human to quantify the authenticity of the document as taught by Brundage, *ibid*. The aforementioned cover the limitations of claim 19.

22. As per claim 22, the rejection of claim 19 under 35 USC 103(a) as being unpatentable over 35 USC 103(a) is incorporated herein. In addition, Tresser discloses

wherein the processor and the computer readable memory device are resident within a document printing device. (col. 1:10-12; fig. 7, reference no. 739)

23. As per claim 23, Tresser discloses an system to authenticate an electronic document file, comprising:

m. a sender computer configured to provide the electronic document file in the form of a sender initial digital file; a sender printer configured to: receive the sender initial digital file; submit the sender initial digital file directly to a predetermined halftoning process to generate a first digital halftone file without any intervening transformations; submit the first digital halftone file to a predetermined mathematical process to thereby generate a sender authentication key; and display the sender authentication key to a sender; (col. 8:56-9:44; 10:61-64)

n. a receiver computer configured to receive the electronic document file from the sender as a receiver initial digital file; a receiver printer configured to: receive the receiver initial digital file; submit the receiver initial digital file directly to the predetermined halftoning process to generate a second digital halftone file without any intervening transformations; submit the second digital halftone file to the predetermined mathematical process to thereby generate a receiver authentication key. (col. 9:63-10:48, especially 10:36-41; the inverse of the signature is a compressed version of N'; embedded matrix M is transformed to compressed version of half tone N, a match authenticates the document)

24. Tresser does not disclose displaying a copy of the authentication key to a user via one of a printer or a user display. Brundage discloses a system for authenticating identification documents using a watermark, wherein an authenticator displays the watermark information to a user to allow an inspector or officer to visually compare the watermark information against information printed on the document. Paragraph 62. It would be obvious to one of ordinary skill in the art at the time the invention was made to display a copy of the authentication key to a user via one of a printer or a user display. One would be motivated to do so to enable a human to quantify the authenticity of the document as taught by Brundage, *ibid*. The aforementioned cover the limitations of claim 23.

25. Claims 20, 21, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tresser in view of Brundage and further in view of Linsker.

26. As per claims 20 and 21, the rejection of claim 19 under 35 USC 103(a) as being unpatentable over Tresser and Brundage are incorporated herein. Tresser does not disclose the system further comprising a modem configured to receive the initial digital file from a sender and communicate the file, via the processor, to the computer readable memory device; and one of a telephone or a facsimile machine configured to receive a sender authentication key that can be compared to the generated authentication key to authenticate the electronic document file. Linsker discloses using an authentication key to verify the integrity of a fax transmission from a sender to a receiver. The

authentication key is based on a digest of a digital document and signature of the digest, which is appended to the document and faxed to the receiver. The receiver recovers the first digest from the signature then performs an operation on the digital document to create a second digest, wherein a match between the first and second digest shows that the document is authentic. Col. 6:33-8:15. It would be obvious to one of ordinary skill in the art at the time the invention was made for the system of Tresser to further comprise a modem configured to receive the initial digital file from a sender and communicate the file, via the processor, to the computer readable memory device; and one of a telephone or a facsimile machine configured to receive a sender authentication key that can be compared to the generated authentication key to authenticate the electronic document file. One would be motivated to do so to ensure the authenticity of documents transmitted via fax using an authentication key derived from halftoning digital information, a process that provides the requisite security, whether or not the document was scanned properly. (Linsker, 1:43-55; Tresser, 3:49-55) The aforementioned cover the limitations of claims 20 and 21.

27. As per claims 24 and 25, the rejection of claim 23 under 35 USC 103(a) as being unpatentable over Tresser and Brundage are incorporated herein. Tresser does not disclose the system further comprising a network connection configurable to allow the sender computer to send the sender initial digital file to the receiver computer; and a sender telephone and a receiver telephone to allow the sender to communicate the sender authentication key to the receiver; or a sender facsimile machine and a receiver

facsimile machine to allow the sender to communicate the sender authentication key to the receiver. Linsker discloses using an authentication key to verify the integrity of a fax transmission from a sender to a receiver. The authentication key is based on a digest of a digital document and signature of the digest, which is appended to the document and faxed to the receiver. The receiver recovers the first digest from the signature then performs an operation on the digital document to create a second digest, wherein a match between the first and second digest shows that the document is authentic. Col. 6:33-8:15. It would be obvious to one of ordinary skill in the art at the time the invention was made for the system of Tresser to further comprise a network connection configurable to allow the sender computer to send the sender initial digital file to the receiver computer; and a sender telephone and a receiver telephone to allow the sender to communicate the sender authentication key to the receiver; or a sender facsimile machine and a receiver facsimile machine to allow the sender to communicate the sender authentication key to the receiver. One would be motivated to do so to ensure the authenticity of documents transmitted via fax using an authentication key derived from halftoning digital information, a process that provides the requisite security, whether or not the document was scanned properly. (Linsker, 1:43-55; Tresser, 3:49-55) The aforementioned cover the limitations of claims 24 and 25.

Communications Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung W. Kim whose telephone number is 571-272-3804. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jung W Kim/
Examiner
Art Unit 2132